UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

Memorandum

Date: December 6, 2006

Subject: Evergreen Manor Groundwater Contamination Site

From: William J. Ryan, Remedial Project Manager
Remedial Response Section #6, SR-6J

William J Ryan 12/06/06

Through: Richard C. Karl, Director
Superfund Division, S-6J R. Karl

To: Site File

This memorandum documents the actions that EPA has undertaken or approved since the Record of Decision (ROD) was signed on September 30, 2003, and substantiates two non-significant changes. The selected remedy requires: 1) Monitored Natural Attenuation (MNA) of contaminated groundwater until federal Maximum Contaminant Levels (MCLs) and Illinois primary drinking water standards for trichloroethene, tetrachloroethene, and other site-related chemicals are reached; 2) institutional controls to limit the use of contaminated groundwater until the cleanup is complete; 3) monitoring a statistically significant number of homes for the effects of vapor intrusion; and 4) contingency actions should site conditions deteriorate.

EPA signed an Administrative Order on Consent (AOC) with Ecolab and Waste Management of Illinois on September 29, 2004 to perform a Remedial Design (RD). The statement of work for the RD required the respondents to conduct studies that would provide the information necessary for the design and implementation of the Remedial Action (RA). This information included the current extent of the contaminant plume and an evaluation of the potential for vapor intrusion. EPA authorized a phased approach to determining the need to perform vapor intrusion monitoring by including the following language in the statement of work:

> EPA will not require Respondents to perform vapor intrusion monitoring at properties with inhabited buildings if, after an acceptable subsurface investigation is performed in accordance with this SOW and the OSWER draft guidance on subsurface vapor intrusion, it is demonstrated to EPA's satisfaction that there is an incomplete vapor intrusion pathway, as defined by the OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. EPA reserves the right to re-evaluate the need for vapor intrusion monitoring at properties with inhabited buildings at the site if at any time EPA determines there is a complete vapor intrusion pathway.

The basis for EPA's decision to allow a phased approach to initiating a vapor intrusion monitoring program lies in the uncertainty that then surrounded the remaining contaminant concentrations and the horizontal and vertical extent of the groundwater contamination within the plume. This was especially true for groundwater near the vadose zone within the residential area that could pose the greatest risk to residents through vapor intrusion. Additional uncertainties existed because EPA's feasibility study vapor intrusion investigation was a one-time sampling event at only four homes in the area, where sample size, property and construction-specific factors, and seasonal variations were not considered. Given the degree of uncertainty, EPA deemed it appropriate that the respondents be given an opportunity to demonstrate whether a complete vapor intrusion pathway was present.

The respondents submitted a Remedial Design Work Plan on May 26, 2005, which EPA approved on June 7, 2005. The respondents conducted the RD investigations and a Remedial Design Report was submitted to EPA on February 13, 2006. The investigation re-sampled 24 existing monitoring wells and completed three vertical aquifer profiles through the center of the inferred plume. Sample results from the monitoring wells indicated no contamination exceeding the remedial standards set forth in the ROD. Volatile organic compounds were also detected in the vertical aquifer profile groundwater screening samples, but none of the detected concentrations exceeded the MCL. The Remedial Design Report thus concluded that a definable groundwater contamination plume no longer exists and that the vapor intrusion pathway is incomplete. EPA concurred with these findings on May 24, 2006, and will not require the respondents to develop a vapor intrusion monitoring program.

As required by the Remedial Design Work Plan, the respondents developed a Monitored Natural Attenuation Plan for the site, which has yet to be formally approved by EPA. Because all monitoring points that still have detectable groundwater contamination are below remedial standards, the remedy is essentially complete. The BIOSCREEN model employed in developing the ROD predicted that under appropriate conditions the contaminant levels could be below remedial standards in as little as 1.5 to 3 years, so these observations were not unanticipated.

EPA believes that the site must be adequately monitored for a period sufficient to ensure that the remedy remains protective, but is prepared to excuse the demonstration that subsurface conditions will support natural attenuation, and the careful tracking of progress toward completion, necessary for a standard MNA remedy. Because the ROD remains in effect, the provisions for the implementation of contingency actions will protect human health and the environment should monitoring indicate that conditions are deteriorating.

Summary

- On September 30, 2003 EPA signed a ROD for MNA with concurrent vapor intrusion studies
- On September 29, 2004 EPA signed an AOC for RD, which approved a phased approach to developing a vapor intrusion monitoring plan
- On May 24, 2006 EPA concurred with the findings of the Remedial Design Report that remedial standards have been attained, a definable groundwater plume no longer exists, and that the vapor intrusion pathway is incomplete

- Because the vapor intrusion pathway is incomplete, EPA will not require the respondents to develop a vapor intrusion monitoring program
- Because all monitoring points with detectable groundwater contamination are currently below remedial standards, EPA will excuse the demonstration and tracking that MNA normally entails, and simply require monitoring to ensure that the remedy remains protective